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Standard talk

Monitoring NSAIDs in carrion and vultures after diclofenac registration for veterinary use in Spain

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The severe impact of diclofenac in Asian vultures due to its veterinary use has been one of the biggest ecological catastrophes of the last decades, pointing out the deficient environmental risk assessment of some of these compounds. In the case of diclofenac, there was an evident gap in the knowledge of the high toxicity that this non-steroidal anti-inflammatory drug (NSAID) has in Old-World vultures that can feed on treated livestock. Despite this fact, diclofenac was registered for livestock treatment in Spain in 2013, a country that hosts the largest population of European vultures. In this study we have evaluated the risk of exposure to diclofenac and ten other NSAIDs in vultures after its commercialization in Spain. With this purpose we sampled 156 pig, 25 sheep and 2 bovine carrion intended for vulture consumption in feeding stations. In addition, we sampled 183 vulture carcasses of Eurasian Griffon vulture (n = 160), Cinereous vulture (n = 8), Egyptian vulture (n = 7) and Bearded vulture (n = 8). Carrion samples (muscle, liver and kidney) and Vulture samples (liver and kidney) were analysed by liquid chromatography coupled to mass spectrometry (LC-MS--QTOF). Five of the pig carrions analysed (3.27%) had NSAID residues, specifically flunixin (n = 2, 1.31%), diclofenac, ketoprofen and meloxicam (n = 1, 0.65%, each). Six of the Eurasian griffon Vultures analysed (3.75%) showed NSAID residues, specifically flunixin (n = 4, 2.5%) and meloxicam (n = 2, 1.25%). The Vulture with higher levels of flunixin in kidney (22100 µg/kg) and liver (4900 µg/kg) had visceral gout lesions. Residue levels in carrion and scavengers indicate a limited risk of poisoning, however, veterinary use of NSAIDs can still be a threat for scavengers if veterinarians and farmers ignore the associated risk when treated livestock is used to feed Vultures.